

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-3 (Withdrawn).

Claim 4 (Currently Amended). A fuel cell system comprising:

at least one fuel cell, each fuel cell comprising:

~~a main fuel~~ an inlet for a fuel;

an anode having an anode catalyst associated therewith for producing cations from the fuel;

a fuel manifold, connected between the main fuel inlet and the anode, for distributing the fuel to the anode;

an oxidant inlet means for supplying oxidant;

a cathode having a cathode catalyst associated therewith and connected to the oxidant inlet means, for producing anions from the oxidant, said anions reacting with said cations to form water on said cathode;

an ion exchange membrane deposited between said anode and said cathode, said membrane facilitating migration of cations from said anode to said cathode, while isolating the fuel and the oxidant from one another; and

a catalytic reactor having a first inlet for the fuel and a second inlet for the oxidant, and an outlet for remaining gas that has been heated and humidified, the catalytic reactor being connected to the ~~main~~ fuel inlet, whereby, in use, with the fuel and the oxidant supplied to the catalytic reactor and the fuel being supplied in excess of the stoichiometric amount, the remaining, heated and humidified gas comprises heated and humidified fuel and is supplied from the catalytic reactor to the ~~main~~ fuel inlet.

Claim 5 (Original). A fuel cell system as claimed in claim 4, which includes a plurality of fuel cells forming a fuel cell stack, which includes a main fuel inlet connected to all of the inlets of the fuel cells.

Claim 6 (Previously Amended). A fuel cell system as claimed in claim 4 or 5, wherein the catalytic reactor is generally tubular.

Claims 7-8 (Cancelled).

Claim 9 (Original) A fuel cell system as claimed in claim 5, wherein the oxidant inlet means comprises an air distribution manifold within the fuel cell stack for distributing air, as the oxidant, to individual fuel cells, wherein a main air supply line is provided connected to the air distribution manifold.

Claim 10 (Original) A fuel cell system as claimed in claim 9, wherein the fuel cell stack includes a fuel outlet and means for recirculating fuel from the fuel outlet to the fuel inlet.

Claims 11-12 (Cancelled).

Claims 13-16 (Withdrawn).

Claim 17 (New) A fuel cell system, comprising:

a plurality of fuel cells forming a fuel cell stack having a main fuel inlet, each fuel cell comprising:

an inlet for a fuel, the fuel inlet of the fuel cell being connected to the main fuel inlet of the fuel cell stack;

an anode having an anode catalyst associated therewith for producing cations from the fuel;

a fuel manifold, connected between the main fuel inlet and the anode, for distributing the fuel to the anode;

an oxidant inlet means for supplying an oxidant;

a cathode having a cathode catalyst associated therewith and connected to the oxidant inlet means, for producing anions from the oxidant, said anions reacting with said cations to form water on said cathode;

an ion exchange membrane deposited between said anode and said cathode, said membrane facilitating migration of cations from said anode to said cathode, while isolating the fuel and the oxidant from one another; and

a catalytic reactor having a first inlet for the fuel and a second inlet for the oxidant, and an outlet for remaining gas that has been heated and humidified, the outlet of the catalytic reactor being connected by a first control valve to the main fuel inlet of the fuel cell stack and by a second control valve to the oxidant inlet means whereby, in use, the outlet of the catalytic reactor can be selectively connected to one of the main fuel inlet and the oxidant inlet means, with supply of the oxidant and the fuel to the catalytic reactor adjusted so that the heated and humidified gas at the outlet of the catalytic reactor includes an excess of gas corresponding to said one of the main fuel inlet and the oxidant inlet means.

Claim 18 (New) A fuel cell system as claimed in claim 17, which includes a fuel supply line connected to the catalytic reactor and an air supply line connected to the catalytic reactor, each of the fuel supply line and the air supply line including, at least one of a pressure gauge, a flow meter and a non-return valve.

Claim 19 (New) A fuel cell system, comprising:

a plurality of fuel cells forming a fuel cell stack having a main fuel inlet, each fuel cell comprising:

an inlet for a fuel, the fuel inlet of the fuel cell being connected to the main fuel inlet of the fuel cell stack;

an anode having an anode catalyst associated therewith for producing cations from the fuel;

a fuel manifold, connected between the main fuel inlet and the anode, for distributing the fuel to the anode;


an oxidant inlet means for supplying an oxidant;

a cathode having a cathode catalyst associated therewith and connected to the oxidant inlet means, for producing anions from the oxidant, said anions reacting with said cations to form water on said cathode;

an ion exchange membrane deposited between said anode and said cathode, said membrane facilitating migration of cations from said anode to said cathode, while isolating the fuel and the oxidant from one another; and

a catalytic reactor having a first inlet for the fuel and a second inlet for the oxidant, and an outlet for remaining gas that has been heated and humidified, the catalytic reactor being connected to the main fuel inlet, whereby, in use, with the fuel and the oxidant supplied to the catalytic reactor and the fuel being supplied in excess of the stoichiometric amount, the remaining, heated and humidified gas comprises heated and humidified fuel and is supplied from the catalytic reactor to the main fuel inlet,

and wherein, the oxidant inlet means comprises an air distribution manifold within the fuel cell stack for distributing air, as the oxidant, to individual fuel cells, wherein a main air supply line is provided connected to the air distribution manifold, wherein the catalytic reactor is provided in the main fuel supply line, and wherein a second catalytic reactor is provided in the main air supply line and a secondary fuel supply line connects the main fuel supply line to the secondary catalytic reactor, for a supply of fuel in an amount less than the stoichiometric amount required for combustion with air, whereby, the secondary catalytic reactor generates heated and humidified air.

 Claim 20 (New). A fuel cell system as claimed in claim 19, wherein each of the first and second catalytic reactors is generally tubular.
